considerably exceeds both in length and in thickness any of the older chromosomes. The chromosome group of the male gametophyte contains no element similarly distinguished by its size; on the other hand, the male possesses a very small chromosome which seems not to correspond in size to any element in the female.

The other chromosomes in the cells of either sex have the form of slender rods; there are noticeable differences in length between those of each group. The bending and not infrequent overlapping of the ends of the chromosomes place difficulties in the way of an exact determination of their number; but, subject to modification by further study, it may be said with reasonable assurance that the chromosome number for each sex is eight. As to seven of the eight, the chromosomes of the male seem to resemble those of the female; but the eighth chromosome of the female is probably corresponding to it in the male is the the large one already referred to, and the one very small chromosome.

Of the two spindles formed in each spore mother cell at the time of the homœotypic division, one shows a large body which is sometimes plainly two-parted; no element appears on the other spindle that approximates in size this large chromosome. It has been reported that in at least one species of *Sphærocarpos* two of the spores of each tetrad develop into male plants and the other two into females. Observations which I have made, although as yet in limited number, indicate that the same rule holds for *S. Donnellii.* The cytological results here reported seem to show that in consequence of the chromosome distribution in the reduction divisions two of the four spores derived from a single mother cell receive each a large chromosome (and seven of smaller size), and these spores develop into female plants; and that each of the other two spores receives a small chromosome instead of the large one, and, on germination, gives rise to a male plant.

The resemblance between this history and that of the chromosomes of certain insects, such as *Lygœus* and *Euschistus,* which possess a large X- and a small Y-chromosome, is obvious. It is too early to conclude that the particular chromosomes with respect to which the male and female gametophytes of *Sphærocarpos* differ are the bearers of definite sex-determining factors; but it seems not unlikely at least that the greater size and vigor of growth of the female gametophyte are associated with the greater amount of chromatin that its cells contain.

CHARLES E. ALLEN
UNIVERSITY OF WISCONSIN

THE AMERICAN ASTRONOMICAL SOCIETY

THE twenty-first meeting of the society was held August 29 to 31 at the Dudley Observatory, Albany, N. Y., about ninety members and visitors being present. The arrangements for the meeting were admirably carried out by the host, Professor Benjamin Boss, acting also for the trustees of the Dudley Observatory and the department of meridian astrometry of the Carnegie Institution of Washington. The activities included an excursion to Saratoga Lake and a visit, at the close of the meeting, to Vassar College and its observatory.

Various committee reports and items of business were considered by the society, among others the question of the daylight saving movement, and when an informal expression of opinion was called for, the vote stood

In favor of daylight saving.....	18
Opposed to the plan	22
Neutral	6
	46

Another matter in the same connection, which would affect only astronomers, was a proposal coming from England that the astronomical day begin at midnight instead of at noon as at present. A test vote showed that a large majority of the members present were opposed to the change, but after some parliamentary procedure it was agreed to refer the matter to a committee to make a report back to the society.

Officers were elected for the ensuing year as follows:

President—Edward C. Pickering.
First Vice-president—Frank Schlesinger.
Second Vice-president—W. W. Campbell.
Secretary—Philip Fox.
Treasurer—Annie J. Cannon.

Councillors—Ernest W. Brown, Edwin B. Frost, J. S. Plaskett, Joel Stebbins.

The next meeting of the society will be held at the Harvard Observatory about September 1, 1918.

Following is the list of papers presented at the meeting, the abstracts of which are published in *Popular Astronomy:*

Sebastian Albrecht: On the variation in spectral type of the fourth-class variable star *l Carinæ.*

S. I. Bailey: Note on the variable stars in the globular cluster *Messier 15.*

L. A. Bauer: A brief statement of the work of the Committee on Navigation and Nautical Instruments of the National Research Council.

R. R. Candor: A mechanical device for interpolation.

Annie J. Cannon: Distribution of light in stellar spectra.

J. B. Cannon: Note on two spectroscopic binaries.

W. A. Conrad: Note on a possible explanation of erratic jumps in clock rates.

R. H. Curtiss: Spectra of *Nova Geminorum No. 2* and other stars.

Ralph E. De Lury: A new form of spectrocomparator.

A. E. Douglass: The Steward Observatory of the University of Arizona.

A. E. Douglass: An optical periodograph.

Raymond S. Dugan: On the eclipsing variable *R Canis Majoris.*

W. S. Eichelberger: Eccentricity and longitude of perisaturnium of the orbits of *Enceladus, Tethys* and *Dione.*

W. S. Eichelberger: The obliquity of the ecliptic from the Sun observations made at the U. S. Naval Observatory, 1903–1911.

W. S. Eichelberger: The refraction at Washington.

W. S. Eichelberger and F. B. Littell: Day observations minus night observations.

W. S. Eichelberger and H. R. Morgan: Comparison of Washington right ascensions with those of Newcomb, Auwers, Boss, Hedrick and Poulkowa, 1905.

W. S. Eichelberger and H. R. Morgan: Comparison of Washington declinations with those of Newcomb, Auwers and Boss.

George E. Hale: The best service of astronomers in time of war.

W. E. Harper: Notes on some spectroscopic binaries.

C. C. Kiess: On the presence of rare earths in *α Canum Venaticorum.*

E. S. King: Some recent work in photographic photometry.

Jacob Kunz and Joel Stebbins: Photo-electric observations of new variable stars.

C. O. Lampland: Measures of position of the nucleus of the great nebula in *Andromeda.*

C. O. Lampland: Recent observations of *Nova Persei 1901.*

C. O. Lampland: Photographic observations of the variable nebulæ N.G.C. 2261 and N.G.C. 6729.

F. B. Littell: Variation of latitude at the U. S. Naval Observatory.

W. F. Meggers: Photography of the solar spectrum.

Paul W. Merrill: Photography of the extreme red and infra-red portions of stellar spectra.

Joel H. Metcalf: A comparison of an 8-inch doublet with a 10-inch triple anastigmatic lens.

G. H. Peters: The photographic telescope of the U. S. Naval Observatory.

E. C. Pickering: Variation in light of asteroids.

W. F. Rigge: The total solar eclipse of June 8, 1918, as visible in the United States.

Luis Rodés: Direct application of Wulf's electrometer for recording the time sent by wireless telegraphy, and its connection with the potassium photo-electric cell to register the duration of totality in a solar eclipse.

H. B. Rumrill: A plea for the small telescope.

H. N. Russell: The masses of the stars.

H. N. Russell: On the calculation of the orbits of visual binaries.

H. N. Russell: New double star orbits.

F. H. Seares, A. Van Maanen and F. Ellerman: Location of the sun's magnetic axis.

H. T. Stetson: Some recent improvements in thermo-electric apparatus for photographic photometry.

Frank Schlesinger: Determination of stellar parallaxes at the Allegheny Observatory.

V. M. Slipher: Observations of the aurora spectrum.

V. M. Slipher: Spectrographic observations of star clusters.

R. Trümpler: Preliminary results on the constitution of the *Pleiades* group.

David Todd: Weather prospects along the central line of total eclipse, 1918, June 8.

A. Van Maanen: Discussion of the Mt. Wilson parallaxes.

F. W. Very: On a possible limit to gravitation.

Joel Stebbins,
Acting Secretary